

**Compact Polarization Insensitive Circulators with Simplified Structure
and Low Polarization Mode Dispersion**

ABSTRACT

Disclosed are optical circulators including a first beam displacer/combiner, a first nonreciprocal rotator, a first beam angle turner, a second beam angle turner, a second nonreciprocal rotator, and a second beam displacer/combiner, together with methods of using the optical circulators and telecommunications systems including the optical circulators.